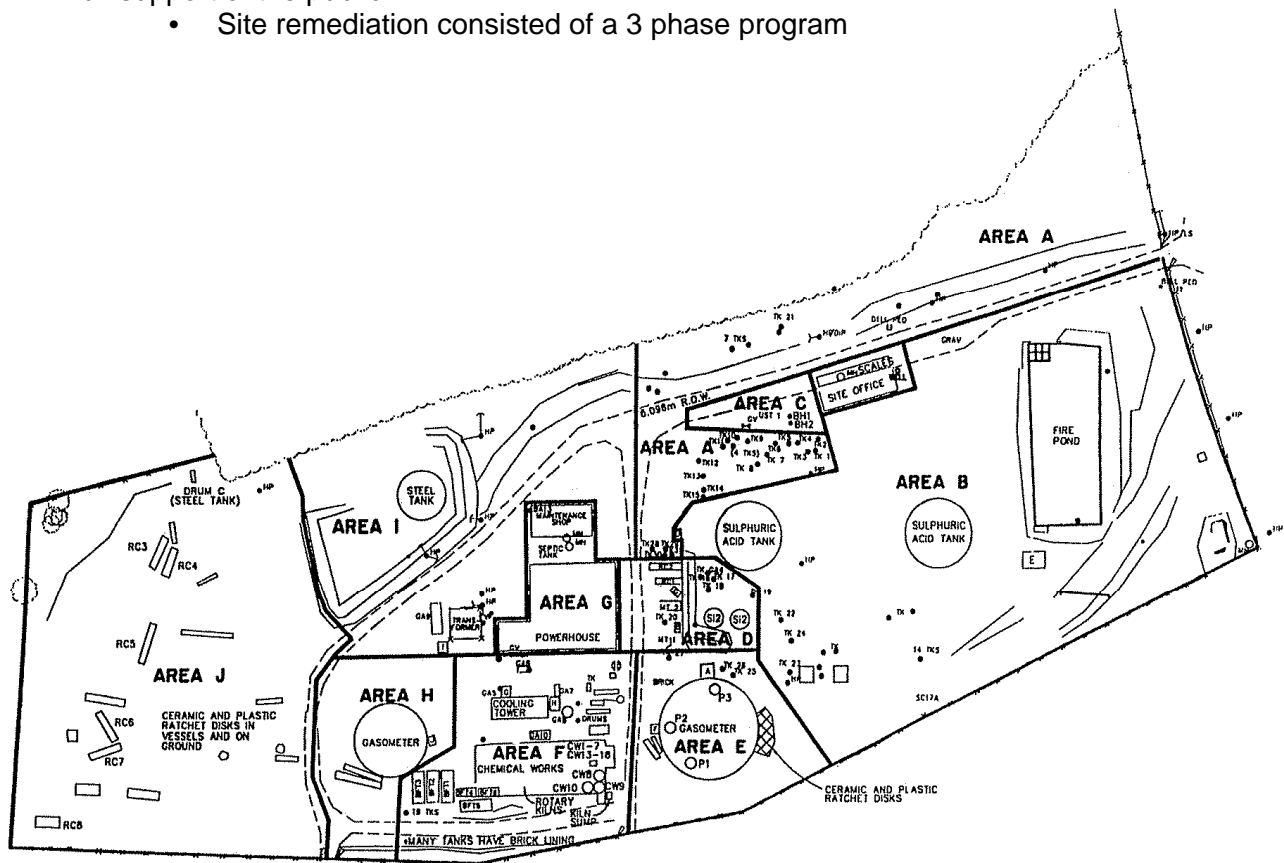


# Shamrock Chemicals Site Remediation

## Site History (see Appendix A for pictures)

- From about 1947 to 1958, an oil gasification plant operated on the property.
- 1970 to 1985 A fertilizer manufacturing plant was operated by Shamrock Chemicals
- 1987 The property was abandoned
  - Numerous tanks remained on site
  - Continued insecure storage of contaminants
  - A threat to human health and the environment existed
- 1993 MOE issued Control Order for site clean up
- 1994 MOE intervened in the interest of the public due to noncompliance of the Order, with full support of the public.
  - Site remediation consisted of a 3 phase program



## Site status

The ministry undertook groundwater sampling programs in 1998, 1999, 2000 and 2001

- Groundwater was impacted before the clean up work was done.
- Improvements to the groundwater were found after clean up.
- The ministry concluded the threat to the natural environment from this site was insignificant and no further work was required

As of 2008, results from groundwater monitoring of the adjacent Ultramar Property indicate current standards are being met along the Shamrock property boundary. There is no indication of impacts migrating from the Shamrock Property. Monitoring continued in 2009.

The ministry properly closed 14 historic monitoring wells on the site in 2010. The wells, installed by the ministry during the site cleanup, were beyond their useful life and legislation requires that they be properly closed.

### Phase I (May to August 1994)

Purpose: To secure the site against further environmental degradation and risk to human health.

The following wastes were characterized and removed to an appropriate licensed facility

1. 100 tonnes of waste acid
2. 10 tonnes of chemical fertilizer wastes
3. 1165 tonnes (247,000 lgal) of oil tar waste
4. 6 tonnes (7,000 lgal) of recyclable anhydrous ammonia
5. 350 tonnes of recyclable potash
6. 15 tonnes (4,000 lgal) of recyclable hydrochloric acid
7. 3000 tonnes (630,000 lgal) of PAH contaminated water
8. 1500 tonnes of scrap metal
9. 500 tonnes of rubble

Phase I work satisfied above ground environmental concerns. Upon Phase I completion oil tar was seeping into George St. Drain

### Phase II (October – December 1994)

Purpose: To prevent contamination moving offsite below ground surface

1. Excavation was selected as the best long term solution
2. Below ground contaminants were found 1.5m below ground surface around piping and at 6-9 m depth in a sand and gravel seam
3. A temporary above ground containment cell was constructed
4. Under ground piping (1000m) was removed and disposed of
5. Controlled excavation of the contaminated area occurred (38,207m<sup>3</sup>)
6. Excavations were dewatered and water treatment occurred (500,000lgal)
7. Contaminated soils were placed in the containment cell (10,500m<sup>3</sup>)
8. Excavations were backfilled with imported clean fill material (25,000m<sup>3</sup>)

Phase II work effectively stopped offsite movement of oil tar to the George Street Drain and the Ultramar property. Upon Phase II completion contaminated soil remained in the containment cells.

### Phase III (August 1995)

Purpose: To manage the contaminated soil remaining on site

1. The remedial option selected was to separate contaminants from soil using heat or Low Temperature Thermal Desorption
2. Difficulties in soil handling for the thermal option caused significant delays in the schedule. The operation was also plagued with equipment break downs
3. To meet targeted deadlines an alternative remedial solution was selected: contaminant disposal in appropriately licensed landfills
4. All contaminated material was tested and found to be non-hazardous soil
5. The material was then trucked to a municipal landfill approved to accept solid non-hazardous waste
6. Final site grading occurred in 1996



**BEFORE (1985)**

**After Cleanup**

